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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/748,783	12/26/2000	David R. Goodlett	P-IS 4369	3333
23601	7590	03/12/2004	EXAMINER	
CAMPBELL & FLORES LLP 4370 LA JOLLA VILLAGE DRIVE 7TH FLOOR SAN DIEGO, CA 92122			MAHATAN, CHANNING	
			ART UNIT	PAPER NUMBER
			1631	

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/748,783

Applicant(s)

GOODLETT, DAVID R.

Examiner

Channing S Mahatan

Art Unit

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7-16, 18-36 and 52-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-16, 18-36 and 52-70 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1 Sheet.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### *APPLICANTS' ARGUMENTS*

Applicants' arguments, filed 03 November 2003, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

### *CLAIMS UNDER EXAMINATION*

Claims herein under examination are claims 1-5, 7-16, 18-36, and 52-70. Claims 6, 17, and 37-51 have been cancelled.

### **Claims Rejected Under 35 U.S.C. § 103**

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 5, 12, 24, 25, 27, 33-36, 52-57, 59, 60, and 66-70 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yates et al. (Mass Spectrometry and the Age of the Proteome, Journal of Mass Spectrometry. 1998, Volume 33, pages 1-19). In view of Applicants' arguments regarding the limitation "an annotated polypeptide index", said limitation is considered obvious and is rejected under 35 U.S.C. § 103(a) with further clarification below. It should be further noted Yates has been previously described in prior office actions and is to be referred to.

To expedite prosecution, this rejection is directed to the arguments presented by Applicants regarding the Yates reference (previously rejected under 35 U.S.C. § 102 (b)), wherein Applicants' submitted that Yates does not teach: 1) simultaneously determining the mass of a subset of parent polypeptides from a population of polypeptides and the mass of fragments of the subset of parent polypeptides; 2) the use of an annotated polypeptide index, asserting that Yates describes the use of databases based on predicted values, not Applicants' disclosed annotated polypeptide index, which comprises at least one empirically determined characteristic. Applicants' arguments are not found persuasive.

It appears Applicants' specification indicates the limitation "absence of ion selection" as all ions being fragmented at the source followed by simultaneous mass spectrometer analysis, such that all ions (i.e. subset of parent polypeptides) are subjected to the mass spectrometer (Figure 2B); supported by:

"Simultaneous determination of the mass of a subset of polypeptides can be performed, for example, in the absence of selection [at source] of a single ion for mass determination. For example, several polypeptides [all polypeptides] can be selected rather than a single ion." (page 55, line 8-17; and Figure 2)

Yates describes the use of time-of-flight mass (TOF) spectrometers to identify proteins wherein all ions (i.e. peptide fragments) are simultaneously (fragments are separated based upon kinetic energy differences corresponding to varying fragment masses) subjected to the mass spectrometer in a field free region (i.e. absence of ion selection) (page 5, column 1, line 4 to column 2, line 21). As illustrated in Figure 7 time-of-flight mass spectrometer: 1) parent polypeptide is selected from a population of polypeptides; 2) the parent polypeptide is subjected to proteolysis; 3) fragments are collected and analyzed by time-of-flight; and 4) the data obtained

from the spectrometer is used to search the database to identify the protein. Therefore, Yates describes utilizing a mass spectrometer to identify proteins wherein all ions (i.e. peptide fragments) are simultaneously subjected to the mass spectrometer in a field free region (absence of ion selection).

The following definition for an “annotate polypeptide index” indicated from the instant specification is relied upon for clarification purposes:

“An “annotated polypeptide (AP) index” refers to an index comprising at least one empirically determined characteristic for each of the polypeptides in the index, which can be determined, for example, by the methods disclosed herein.” (page 19, beginning on line 28 to page 20, line 1)

Yates describes the use of databases based on predicted values (page 7, right column, last paragraph). Further, the author indicates other types of information have been combined with such databases to increase the specificity of the identifications (page 8, left column, lines 6-10). Yates lists examples of such information and resulting effects: 1) information from proteolytic digests to increase search accuracy; 2) employing tandem mass spectrometry to sequence a peptide when an identification based on a mass map is uncertain; 3) sequence information can be added to measured m/z values to increase the certainty of an identification; 4) and the information of an organism to identify similar or homologous proteins of another organism (page 8, beginning on the left column, line 10 to page 9, left column, line 5).

Thus, it would have been obvious to one having ordinary skill in the art at the time of the invention to use a database (annotated polypeptide index) of predicted values and empirically determined values to improve the accuracy of polypeptide identification, since Yates discloses “...other types of information have been combined with such databases to increase the

Art Unit: 1631

specificity of the identifications” (page 8, left column, lines 6-10) (i.e. determined mass values, etc).

The rejection of claims 1-5, 12, 13-16, 23-27, 33-36, 48-60, and 66-70 under 35 U.S.C. § 103 as obvious over Yates (Mass Spectrometry and the Age of the Proteome, Journal of Mass Spectrometry. 1998, Volume 33, pages 1-19); taken in view of Gygi et al. (Quantitative analysis of complex protein mixtures using isotope-coded affinity tags, Nature Biotechnology, 17 October 1999, Volume 17, pages 994-999) is maintained for reasons of record.

Applicants’ submit Yates does not teach or suggest: 1) the use of an annotated polypeptide index; and 2) a method of identifying a polypeptide using mass spectrometry in the absence of ion selection. Applicants further submit that Gygi et al. cannot cure the deficiencies of Yates. This is found unpersuasive.

Applicants are directed to the above 35 U.S.C. § 103(a) rejection which indicates that Yates teaches the used of an annotated polypeptide index (wherein it would be obvious for the index to comprise an empirically determined value) and using mass spectrometry in the absence of ion selection. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the method of quantitating the proteins identified in a single automated operation, as taught by Gygi et al. with Yates a method of identifying polypeptide(s) by mass spectrometry utilizing databases.

The rejection of claims 1-5, 7-16, and 18-70 under 35 U.S.C. § 103 as being clearly anticipated by Yates (Mass Spectrometry and the Age of the Proteome, Journal of Mass Spectrometry. 1998, Volume 33, pages 1-19); taken in view of Gygi et al. (Quantitative analysis of complex protein mixtures using isotope-coded affinity tags, Nature Biotechnology, 17

October 1999, Volume 17, pages 994-999); further in view of Easterling et al. (Routine Parts-per-Million Mass Accuracy for High-Mass Ions: Space-Charge Effects in MALDI FTICR, Analytical Chemistry, 1 February 1999, Volume 71, Number 3, pages 624-632) is maintained for reasons of record.

Applicants' submit Yates does not teach or suggest: 1) the use of an annotated polypeptide index; and 2) a method of identifying a polypeptide using mass spectrometry in the absence of ion selection. Applicants further submit that neither Gygi et al. nor Easterling can cure the deficiencies of Yates. This is found unpersuasive.

Applicants are directed to the above 35 U.S.C. § 103(a) rejection which indicates that Yates teaches the used of an annotated polypeptide index (wherein it would be obvious for the index to comprise an empirically determined value) and using mass spectrometry in the absence of ion selection. Therefore, it would have been obvious to one having ordinary skill in the art at the time the inventions was made to perform a wide range of mass accuracy measurements (100 ppm or greater, 10 ppm or greater, etc), as taught by Easterling et al. with Yates; taken in view of Gygi et al. a method of identifying polypeptides from complex mixtures by mass spectrometry using genomic databases and quantitation of said polypeptides identified in a single automated operation.

*OBJECTION TO DISCLOSURE*

The disclosure remains objected to because of the following informalities:  
The disclosure contains an embedded hyperlink on page 32, line 26. Embedded hyperlinks and/or other form of browser-executable code are impermissible in the text of the application as they represent an improper incorporation by reference. It is suggested that

Art Unit: 1631

“[www.ncbi.nlm.nih.gov/GenBank](http://www.ncbi.nlm.nih.gov/GenBank)” be replaced with “World Wide Web address:

ncbi.nlm.gov/Genbank”. See M.P.E.P. § 608.01 and 608.01(p). Appropriate correction is requested.

**No Claims Are Allowed.**

*EXAMINER INFORMATION*

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 C.F.R. § 1.6(d)). The CM1 Fax Center number is either (703) 872-9306.


Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Channing S. Mahatan whose telephone number is (571) 272-0717. The Examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Woodward, Ph.D., can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instruments Examiner, Tina M. Plunkett, whose telephone number is (571) 272-0549 or to the Technical Center receptionist whose telephone number is (703) 308-0196.

Date: *March 8, 2004*

Examiner Initials: *CSM*

  
MICHAEL P. WOODWARD  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1600

*3/8/04*